

171832Z JUN 05 NAVAIRWARCENACDIV LKE(UC).txt

Subject: 171832Z JUN 05 PROPOSED SAFETY BULLETIN, INSPECTION OF CARBON DIOXIDE CYLINDER OVER PRESSURE PROTECTION DEVICE NAVAIRWARCENACDIV LKE(UC)

TO COMNAVSAFECEN NORFOLK VA(UC)  
CC COMNAVAIRSYSCOM PATUXENT RIVER MD(UC)  
COMNAVAIRFOR SAN DIEGO CA  
CMC WASHINGTON DC(UC)  
NAVAIRWARCENACDIV LAKEHURST NJ(UC)  
BCC /O=ORGANIZATION/OU=SAFECEN/CN=RECIPIENTS/CN=COMNAVSAFECEN

PASS TO OFFICE CODES:

FM NAVAIRWARCENACDIV LAKEHURST NJ//486J00B//  
TO COMNAVSAFECEN NORFOLK VA//90/40/10/30/60//  
INFO COMNAVAIRSYSCOM PATUXENT RIVER MD//5. OD412/PMA202/PMA260//  
COMNAVAIRFOR SAN DIEGO CA//N422/N422B/N422B2B0/N421P2//  
CMC WASHINGTON DC//SD//  
NAVAIRWARCENACDIV LAKEHURST NJ//486J00B//  
//N13600//  
MSGID/GENADMIN/NAVAIR LAKEHURST 4019 CL 596-2//  
REF/A/DOC/TWENTY-NINE PALMS SAFETY ALERT/-//  
REF/B/DOC/NAVAIR 06-20-2/-//  
REF/C/DOC/NAVSUPINST 4440.128D/16JUN2000//  
NARR/REF A IS SAFETY ALERT REGARDING FAILED CARBON DIOXIDE CYLINDER. REF B IS GAS CYLINDER, USE, HANDLING AND MAINTENANCE. REF C IS NAVSUPINST FOR STORAGE AND HANDLING OF LIQUID AND COMPRESSED GASES AND THEIR FULL AND EMPTY PRESSURE VESSELS.//  
GENTEXT/REMARKS/1. U. S. NAVY TECHNICAL COGNIZANT CODE: NAVAIR LAKEHURST, AIRCRAFT SERVICING BRANCH, CODE 486J00B, MR. P. KLEIN, CODE 486J00B, TEL: DSN 624-2963.  
2. DURING WEEKEND OF 14-15 MAY 2005, A CARBON DIOXIDE (CO2) CYLINDER FAILED CATASTROPHICALLY. LOCAL INFORMATION WAS GENERATED AND PUBLISHED VIA REF A, AVAILABLE AT:  
WWW.SAFETYCENTER.NAVY.MIL/ASHORE/FIREDATA/DOWNLOADS/COMPRESSEDGASALERT.PDF.  
3. PRELIMINARY INVESTIGATION INDICATES FAILURE OF COMPRESSED GAS CYLINDER WAS ATTRIBUTED TO THE INSTALLATION OF AN IMPROPER PRESSURE RELIEF DEVICE (PRD) TO THE CYLINDER VALVE (CGA 320). AS A RESULT OF REF A, FLEET WIDE ACTIVITY HAS BEEN TAKEN TO UNNECESSARILY INSPECT ALL COMPRESSED GAS CYLINDERS, REGARDLESS OF SERVICE FOR COMPLIANCE.  
4. IRT REF A, INSPECTION IS REQUIRED OF ALL CO2 CYLINDERS THAT UTILIZE A COMPRESSED GAS ASSOCIATION (CGA) 320 CYLINDER VALVE.  
5. DETAILED INSTRUCTIONS:  
A. INSPECT ALL CO2 COMPRESSED GAS CYLINDERS THAT UTILIZE A CGA 320 VALVE.  
B. LOCATE THE CYLINDER VALVE PRESSURE RELIEF DEVICE (PRD). THIS DEVICE IS NORMALLY LOCATED ON THE CYLINDER VALVE ASSEMBLY, OPPOSITE THE OUTLET CONNECTION. THE APPLICABLE CGA CONFIGURATION NUMBER IS STAMPED ON THE SQUARE AT THE BASE OF THE VALVE.  
C. VERIFY THE PRD CONFORMS TO A CG-1 CONFIGURATION, WHICH CONTAINS A RUPTURE DISK ONLY. TO VERIFY, ENSURE THAT A LINE OF SIGHT IS PERMITTED THROUGH THE DIFFUSER CAP OF PRD TO PERMIT GAS ESCAPE IF RUPTURE DISK ACTIVATES.  
D. PRD'S THAT ARE CG-4 OR CG-5 CONFIGURATION HAVE THE DIFFUSER CAP PLUGGED WITH A METAL ALLOY. TO VERIFY THIS, THE VENTS OF THE DIFFUSER CAP ARE BLOCKED AND THE TOP OF EACH DIFFUSER IS STAMPED WITH EITHER 165 OR 212, WHICH IS THE MELTING POINT OF THE ALLOY IN THE DIFFUSER.  
E. CONDUCT A THOROUGH VISUAL EXAMINATION OF THE EXTERNAL SURFACE OF THE CYLINDER TO DETERMINE IF CORROSION, PITTING, GOUGES, DENTS OR THE ACTION OF FIRE ARE PRESENT, IAW REF B, SECTION VI.

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F. ANY CO2, CGA 320 CYLINDER VALVE THAT DOES NOT HAVE A CG-1 PRD INSTALLED OR DOES NOT PASS VISUAL INSPECTION IAW REF B, IS TO BE REMOVED FROM SERVICE. TO REMOVE FROM SERVICE, DISCHARGE CONTENTS OF CYLINDER TO ATMOSPHERE IAW REF C, PARA 7-2. CYLINDERS ARE TO BE DISPOSED OF IAW REF C, PARA 8-3. C.

6. THIS INSPECTION DOES NOT APPLY TO CYLINDERS UTILIZED FOR OTHER GAS SERVICES. //

172300Z JUN 05 MAGTF TRNGCOM(UC).txt

FROM: OU: CG MAGTF TRNGCOM(UC)

CONVERSATION: THIS IS A GROUND HAZARD REPORT (HR)  
SUBJECT: 172300Z JUN 05 THIS IS A GROUND HAZARD REPORT (HR)  
IMPORTANCE: LOW

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TO CMC WASHINGTON DC SD(UC)  
COMNAVSAFECEN NORFOLK VA(UC)  
CC CG MAGTF TRNGCOM(UC)  
CG MARCORLOGCOM ALBANY GA  
CG MARCORSYSCOM ACLOG(UC)  
CG MCCDC QUANTICO VA SAFETY(UC)  
COMMARFOREUR(UC)  
COMMARFORLANT(UC)  
COMMARFORPAC SAFETY(UC)  
COMMARFORRES(UC)

MSGID/GENADMIN/CG MAGTFTC MCAGCC//  
SUBJ/THIS IS A GROUND HAZARD REPORT RAC-1//  
UNCLAS FOUO//N05102//

SUBJ: THIS IS A GROUND HAZARD REPORT (HR)

REF: A/DOC/MCO P5102.1A//

NARR: /REFERENCE (A) IS MCO FOR MARINE CORPS GROUND MISHAP AND REPORTING  
POC/MR HUIE, GS-12, SAFETY MANAGER, DSN230-6154, FAX DSN230-6154  
RMKS/1. THIS IS A GROUND HAZARD WITH A RAC OF 1. ENDORSEMENT NOT REQUIRED.  
SUMMARY: A CATASTROPHIC FAILURE OF A COMPRESSED GAS CYLINDER OCCURRED OVER  
THE MAY 14 2005 WEEKEND IN AN UNATTENDED, COVERED, STORAGE LOT.

2. DATA.

A. EQUIPMENT: 150 LB. CO2 CYLINDER, NSN 8120-00-181-8082

B. OPERATION/EVOLUTION/PROCEDURE. CYLINDER WAS IN STORAGE, NO OPERATIONS OR  
PROCEDURES WERE BEING CONDUCTED.

C. ENVIRONMENT:

(1) DATE OF MISHAP DISCOVERY: 16 MAY 2005

(2) LOCAL TIME: 0730

(3) WEATHER: CLEAR AND SUNNY

(4) VISIBILITY: N/A

(5) TEMPERATURE: 90F

(6) LOCATION: CYLINDER STORAGE AREA NORTH OF BLDG 1102

3. CIRCUMSTANCES.

A. EVIDENCE AND ANALYSIS.

- THE CYLINDER IS THE PROPERTY OF CENTER LOGISTICS DIVISION AND REFILLED AS  
NEEDED BY A LOCAL CONTRACTOR.

- EVIDENCE OF LIGHT RUST WAS FOUND IN THE CYLINDER. THE RUPTURE LINES  
APPEARED CLEAN.

- NO OTHER CYLINDERS IN THE STORAGE AREA RUPTURED.

- AMBIENT TEMPERATURE OVER THE WEEKEND WAS IN THE 90 DEGREE RANGE.

- THE RUPTURED CYLINDER WAS FOUND TO BE EQUIPPED WITH AN INAPPROPRIATE  
PRESSURE RELIEF DEVICE, CG-5 VICE CG-1.

- THE DEVICE INSTALLED WAS A FUSIBLE METAL/FRANGIBLE DISK COMBINATION TYPE  
USED ON SOME TYPES OF FLAMMABLE GAS CYLINDERS WHICH ONLY ACTIVATES AFTER  
EXCEEDING 212 DEGREES F.

- THE CG-1 VALVE HAS A FRANGIBLE DISK THAT WILL ALLOW PRESSURE BUILD-UP TO  
VENT TO ATMOSPHERE IN THE EVENT OF HEAT BUILD-UP NOT DUE TO FIRE.

- THE COVERED STORAGE AREA IS ADEQUATE AND PROVIDES SHADE TO THE CYLINDERS  
IN STORAGE.

- CYLINDERS WERE PROPERLY STORED IN RACKS DESIGNED TO PREVENT CYLINDERS FROM  
FALLING OVER.

B. CONCLUSIONS. THE EVENT WAS CAUSED BY AN OVERPRESSURE SITUATION WHICH

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COULD NOT BE VENTED DUE TO THE IMPROPER INSTALLATION OF A CG-5 PRESSURE RELIEF DEVICE. THE CG-5 (221 DEGREE F.) (AND CG-4 165 DEGREE F.) RELIEF DEVICES SHOULD NOT BE INSTALLED ON CO2, ARGON, OXYGEN, OR HELIUM CYLINDERS. OTHER CYLINDERS WERE FOUND WITH THE SAME IMPROPER VALVE INSTALLED, BUT DID NOT RUPTURE. ALL CYLINDERS WERE SUBJECTED TO THE SAME ENVIRONMENTAL CONDITIONS RAISING THE POSSIBILITY THAT THE CYLINDER WAS OVERFILLED AND NO ROOM WAS ALLOWED FOR EXPANSION OF THE GAS

C. ESTIMATE INJURY/DAMAGE/REPAIR COST: N/A

4. CORRECTIVE ACTION.

- UNITS ABOARD THE INSTALLATION POSSESSING THE MISHAP CYLINDERS WERE NOTIFIED AND A BASE-WIDE SURVEY WAS CONDUCTED TO ENSURE CYLINDERS EQUIPPED WITH CG-5 OR CG-4 RELIEF DEVICES WERE REMOVED FROM SERVICE.

- CENTER FIRE CREATED A HANDOUT IDENTIFYING THE PROBLEM, PICTURES OF APPROPRIATE AND INAPPROPRIATE RELIEF DEVICES, AND PROCEDURES FOR INSPECTING AND IDENTIFYING IMPROPERLY PROTECTED CYLINDERS.

- HANDOUT WAS FORWARDED TO LFL AND HQMC SAFETY SOLUTIONS GROUP FOR DISSEMINATION.

- RECOMMEND ALL UNITS PERFORM A COMPREHENSIVE SURVEY OF ALL COMPRESSED GAS CYLINDERS TO IDENTIFY ANY CYLINDERS WITH CG-5 OR CG-4 RELIEF DEVICES INSTALLED AND IMMEDIATELY REMOVE THESE CYLINDERS FROM SERVICE.

- CYLINDERS OUTFITTED WITH A CG-5 OR CG-4 PRESSURE RELIEF DEVICE WITH CURRENT HYDROSTATIC TEST DATES SHOULD BE SENT BACK TO COMPRESSED GAS VENDORS FOR GAS RECOVERY AND REFIT WITH THE CG-1 PRESSURE RELIEF DEVICE.

5. REMARKS. MARFORs REDIRECT AS NECESSARY TO SUBORDINATE UNITS FOR ACTION.

6. COMMANDER'S COMMENTS. INSPECT ALL CYLINDERS IMMEDIATELY. A CYLINDER RUPTURE OF THIS NATURE COULD RESULT IN CATASTROPHIC DAMAGE, INJURY, OR DEATH IF IT OCCURS IN AN OCCUPIED WORKSPACE.



# COMBAT CENTER FIRE DEPARTMENT

FIRE, RESCUE & EMERGENCY SERVICES BRANCH

## \*\*\*SAFETY ALERT\*\*\* Compressed Gas Cylinder Warning

### ***IMMEDIATE INSPECTION and CORRECTIVE ACTION REQUIRED***

A catastrophic compressed gas cylinder failure occurred over the May14 weekend in an unattended storage lot.



Debris from the blast was found as far away as 250'. Other 150 lb cylinders were ejected up to 60' with one cylinder launching itself out to the 250' distance. This cylinder would have traveled farther had it not ricocheted off of a conex box and lodged up against a commercial grade chain link fence.

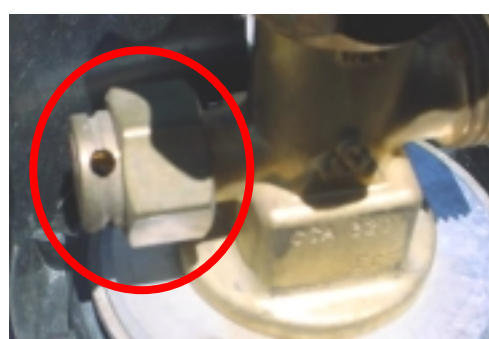
The cause of the failure was determined to be an improper pressure relief device.

Immediately check all compressed gas cylinders within your areas.

The pressure relief device is located directly opposite of the threaded discharge port.



Proper CG-1 Pressure  
Relief Device



Proper CG-1 pressure relief device.

**These examples are not proper pressure relief devices.**



These are improper CG-4/5 pressure relief devices. Notice the metal plugs in the vent ports. Additionally the device will have a temperature rating stamped on the flat end.

**The holes in these devices are stopped up with a fusible metal.**

**If you are uncertain about the type of relief device found on compressed gas cylinders in your area please contact the Combat Center Fire Department at 830-6475/6871 for assistance.**

**If you locate any compressed gas cylinders with the improper (CG-4 or 5) pressure relief device immediately contact Judy Beebe @ 830-5367 or 285-2865 to arrange pick up and exchange.**

**For additional information on these types of relief devices the following Internet link is provided. <http://www.airproducts.com/nr/rdonlyres/b0c59600-39b4-4d81-9a36-bbf4a058bf41/0/safety15.pdf>**